

**Description of take location: Pacific Ocean NW Coast;
States: AK,CA,OR,WA**

The proposed research activities (composed of aerial and surface ship surveys, as well as recording devices mounted on the sea floor) of the take-location in the Pacific Ocean off the Northwest coast of the U.S. primarily aim to investigate the impact of anthropogenic sound in the ocean on marine mammal species including both mysticetes and odontocetes. The particular emphasis will be assessing the impact of noise generated by U.S. Navy operations, including mid-frequency active sonar, low-frequency active sonar, ordnance training, and vessel traffic on marine mammals.

These activities occur most often at designated instrumented training ranges and adjacent waters, but may also occur outside these ranges, for example in more broadly designated Navy operational areas (OPAREAS), military special use airspace complexes, or any of the waters under the responsibility of Naval Facilities Engineering Command Pacific (NAVFAC Pacific). Therefore, although these OPAREAS and airspace complexes in sum cover relatively large areas of waters offshore of Alaska and the NW coast of the U.S., we have designated the majority of these as potential take locations due to the focus and purpose of our intended research under the U.S. Navy's election to consolidate ESA and MMPA compliance efforts under a recent "indefinite delivery, indefinite quantity" (IDIQ) request for quotes (RFQ) (see attached).

Regarding time specificity, the research is planned to be performed: during active U.S. Navy and military exercises, immediately before and after such exercises, as well as during inactive periods between exercises.

To better illustrate potential research locations, a partial non-exhaustive list of instrumented ranges, OPAREAS, and complexes are given here.

The OPAREAS and airspace complexes include: Gulf of Alaska, Whidbey Island, and Pacific Northwest (PACNW) . These OPAREAS and complexes range across waters offshore of all the states listed in the description summary: AK, WA, OR, and northern CA.

These OPAREAS support subsurface training and also have fully instrumented ocean training ranges that may host major training exercises with the potential of generating anthropogenic noise. These include Northwest Training Range Complex (NWTRC) including the Nanoose Bay ranges off the eastern shore of Vancouver Island, the Naval Sea Systems Command (NAVSEA) Naval Undersea Warfare Center (NUWC) Division Keyport, as well as the Southeast Alaska Acoustic Measurement Facility (SEAFAC) in Ketchikan, AK.

Annual expected take numbers expected for incidental harassment in this region over the five year life of the permit were computed for each species from the total number of sightings offshore Central California and Southern California observed in 5-year boat-based survey between 1991 and 2005 off the waters of the U.S. west coast up to 556 km

(300 nmi) offshore (Barlow & Forney, 2007). These raw sighting figures were adjusted for the expected amount of effort involved in the study with the effort expected in this region from the IDIQ RFQ (i.e., 200 hrs/yr aerial survey, and 40 hrs/yr ship survey). Because the aerial surveys usually occur below an altitude of 1000 ft. (304.8 m), and because the ship survey frequently require close approaches for species and group size identification, all sightings are considered takes. The final expected take figure was multiplied by a factor of 2.0 to attempt to account for variation in the sighting numbers, uncertainty within the computations, as well as potentially unexpected sighting numbers due to seasonal or sub-regional variations in abundance during the study periods. A minimum expected take figure of 50 was used.

For more information see:

1. Commander Navy Region Northwest

<https://www.cnric.navy.mil/cnrnw/index.htm>

2. Southeast Alaska Acoustic Measurement Facility

http://www.dt.navy.mil/about_us/division_sites/southeast_alaska_acoustic_measurement_facility/southeast_alaska_acoustic_measurement_facility.html

3) NAVSEA Naval Undersea Warfare Center

<http://www.navsea.navy.mil/nuwc/default.aspx>

<http://www.navsea.navy.mil/nuwc/keyport/default.aspx> (Division Keyport)

4) Nanoose International Range

<http://www.dtic.mil/ndia/marketplace/cooper.pdf>

5) EIS sites

<http://www.nwtrangecomplexeis.com/> (Northwest Training Range Complex)

<http://www.gulfofalaskanavyeis.com/EIS.aspx> (Gulf of Alaska)

http://www.kpt.nuwc.navy.mil/EIS_Home.htm (NUWC Keyport Extension)

<http://www.navy.mil/oceans/documents.html> (EIS & Marine Resource Assessment links)